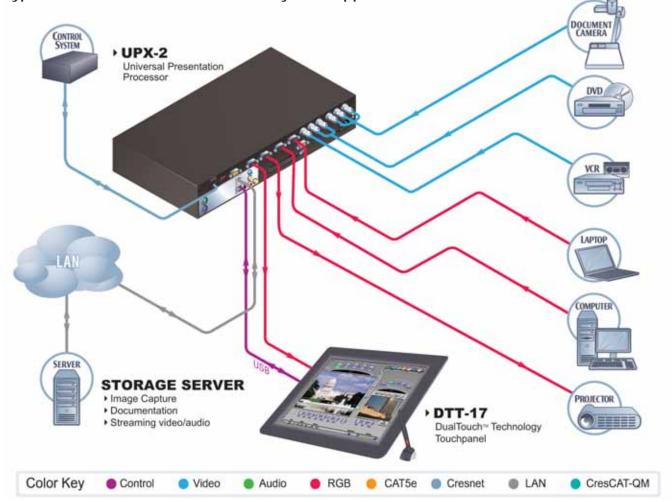# UPX & Digital Video Processors overview

Today's presentation technologies offer much to dazzle an audience, but the point may get lost if the presenter does not have command of that technology. Crestron presentation solutions converge multiple technologies to form a single harmonious system that's intuitive to use and facilitates crystal clear communication.

Crestron's award-winning **UPX Universal Presentation System** is a complete presentation solution integrating touchpanel control with advanced pen-based annotation, multi-window digital video processing, and an embedded multimedia PC. UPX brilliantly assembles a host of popular presentation features to simplify and enhance the presentation of a variety of video, computer, and digital media sources. Crestron **MediaMarker™** professional annotation software lets the presenter annotate over any still image or motion video source, and then save, edit, and share the screen shots and annotation files in a variety of formats. Exclusive **DualTouch™ Technology** combines fingertip operated touchpanel control with a wireless pen-driven drawing tablet for the ultimate presenter's user interface.

The **DVPHD-PRO Digital Video Processor** delivers high-definition multi-window processing for everything from command centers and large lecture halls to advanced home theaters and houses of worship. Connect the DVPHD-PRO to a digital projector, LCD, or plasma display to present a slew of video and computer sources in up to eight fully-scalable windows combined with stunning custom graphics and dynamic text. Add a touchscreen and harness the DVPHD's touchpanel interface capabilities for impacting interactive presentation and kiosk applications.

Isys® G-Series Touchpanel Interfaces enable third-party touchscreen monitors and overlays to be interfaced to the Crestron control system, transforming the display device into a full-featured Crestron Isys touchpanel. These touchpanel interfaces are perfect for custom touchscreen control and interactive kiosk applications, and can also serve as high-resolution graphics generators complete with dynamic text and multi-windowed video for council chamber voting systems, museum and tradeshow exhibits, and other digital signage purposes.

Typical UPX Universal Presentation System Application

Color Key ● Control ● Video ● Audio ● RGB ● CAT5e ● Cresnet ● LAN ● CresCAT-QM

UPX & Digital Video Processors cross reference

	UPX	DVP	Touchpanel Interfaces	
	UPX-2 Universal Presentation System	**DVPHD-PRO** Digital Video Processor	**TPS-G-TPI** Touchpanel Interface	**TPS-GA-TPI** Touchpanel Interface
Touchscreen Support				
Maximum Resolution	1600 x 1200	1920 x 1200	1280 x 768	1280 x 1024
Aspect Ratio	4:3, 15:9, or 16:9	Unlimited	4:3 or 15:9	4:3, 15:9, or 16:9
Display Output	(2) RGB	DVI, HDMI, RGB, QM	RGB, QM	RGB, QM
Touchscreen Interface	USB, RS-232	USB, RS-232	RS-232	USB, RS-232
DualTouch Technology	●			
Touchpanel Graphics				
Color Depth	24-bit 16.7M	24-bit 16.7M	24-bit 16.7M	24-bit 16.7M
8-bit Alpha Channel Transparency	●	●	●	●
Synapse Image Rendering	●	●	●	●
Multimode Objects	●	●	●	●
Dynamic Text and Animation	●	●	●	●
Dynamic Graphics & PNG Translucency	●	●	●	●
Memory				
RAM	512MB	256MB	128MB	128MB
Flash	1GB	64MB	64MB	64MB
Memory Card Slot	2 PC Card Slots	Up to 4GB via CF (1GB provided)	Up to 4GB via CF	Up to 4GB via CF
Maximum Project Size	190MB	200MB	145 to 160 MB	145 to 160 MB
Annotation & PC				
Windows XP Embedded OS	●			
Web Browser, Media Player, Remote Desktop, VoIP, NetMeeting, Yahoo! Widgets, MS Office & Adobe Acrobat Reader[1]	●			
Annotation	MediaMarker w/Screen Capture, Save & Edit	Live Only	Live Only	Live Only
Keyboard/Mouse Input	USB, PS/2, RS-232	USB, RS-232 (mouse only)	Serial (Mouse Only)	USB, Serial (Mouse Only)
Touch-the-PC	●	●	●	●
Video/RGB/DVI				
Scalable Windows	3	8	2	2
Hardware Connections	BNC, RGB	BNC, DVI-I, QM	QM	BNC, RGB, QM
Composite	●	●	●	●
S-Video	●	●	●	●
Component	●	●	●	●
HDTV	up to 1080i	up to 1080p	up to 1080i	up to 1080i
High-Resolution Computer	up to 1600 x 1200	up to 1920 x 1200	up to 1600 x 1200	up to 1600 x 1200
Streaming Media	●			
Audio				
External Source Input	●		●	
WAV Sound File Audio Feedback	●		●	●
Network				
Cresnet	●	●	●	●
Ethernet	●	●	●	●
Mounting				
Rack Mount	2U	3U	1U	1U

[1] See product spec for a complete list of embedded applications
This chart intended for summary comparison only; see each product specification for complete information.

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Universal Presentation Processor **UPX-2**

Crestron's revolutionary UPX-2 Universal Presentation Processor provides a complete, streamlined AV and digital media presentation solution. In one compact rack mount processor, the UPX-2 fuses touchpanel control with professional annotation, multi-window video processing, and an embedded multimedia PC. The result is a total presentation solution supporting multiple video and digital media formats, complete with real-time annotation that requires no additional computers, software, or hardware dongles.

The UPX-2 puts complete display control in the hands of the presenter, providing independently controllable outputs to the presenter's touchpanel and audience display. Multiple scalable video windows and PC applications can be displayed simultaneously for preview at the podium while the audience sees only what the presenter chooses. In addition to great video and computer, the UPX-2 features incredible touchpanel graphics with 24-bit color depth and 8-bit alpha channel supporting 16.7 million colors, full-motion animations, dynamic text and graphics, transparency, and dramatic transition effects, all with astonishing speed.

DualTouch™ Technology—In combination with a Crestron DualTouch Technology touchpanel (sold separately), the UPX-2 provides full touchpanel control of the AV system and environment, plus native Wacom® Penabled® annotation capability using a wireless pen. DualTouch Technology means the switching between touchpanel and annotation occurs transparently allowing presenters to focus on the presentation instead of the technology.

Embedded PC—With built-in Windows Media® Player, RealPlayer®, and Internet Explorer, plus viewers for Word, Excel, PowerPoint®, and Adobe® Acrobat®, the base model UPX-2-1GB serves as a powerful multimedia presentation source without necessitating a separate computer. The enhanced UPX-2-MSO model adds full-blown Word, Excel and PowerPoint applications, letting presenters freely create and edit presentations and documents right onboard. Both models also include NetMeeting® and Remote Desktop to enable videoconferencing and provide remote access to other computers.

Programmatic control of the embedded applications erases the lines between control system and PC, allowing programmers to customize each application's behavior to create a truly powerful and user-friendly interface. Running the Windows® XP Embedded operating system, the UPX-2 delivers a reliable and secure platform for touchpanel control with integrated PC functionality that's invulnerable to viruses

or other rogue software. New security features have been added to enable enhanced Web browsing with Java™, ActiveX® and Flash® support.

Both Cresnet and high-speed Ethernet are standard on the UPX-2 providing for seamless communications with Crestron control systems, computers, digital media servers, and other IP-based devices. Adding an external mouse and keyboard as well as cameras, CD ROM drives, and memory devices is possible through a host of PS/2, USB 2.0, RS-232, and IEEE 1394 ports and front mounted PC Card slots.1

Multi-Window Digital Video Processor—In addition to its built-in PC applications, the UPX-2 supports the display of external video and computer sources in up to three simultaneous scalable windows. The built-in seamless video switcher accepts multiple inputs from NTSC/PAL composite, S-Video, component and HDTV sources. Two RGB inputs are also provided to accommodate non-interlaced sources with up to 1600 x 1200 resolution.

Four discrete video scalers are used to process the individual video windows and full-screen outputs. Motion-adaptive deinterlacing brings out the highest detail by minimizing visible scan lines and motion artifacts. Advanced gamma correction and built-in time base correction ensure accurate color reproduction and a jitter-free image.

Individual RGB outputs are provided for the presenter's touchpanel and audience display, allowing the presenter full control over what the audience sees. The presenter output displays the control GUI, including pop-up PC applications

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UPX-2 Universal Presentation Processor (continued)

and up to 3 video windows. The audience can view that same image or a full-screen image of any external video or RGB source.

MediaMarker™ Annotation—Only the UPX-2 lets presenters draw, write or type in real-time over any computer or video source, display the complete presentation to the audience, and then save, edit, and share screenshots in a variety of formats. Crestron's exclusive MediaMarker application puts truly professional video annotation and electronic whiteboard capability directly onboard.

Without requiring a separate computer or special software, MediaMarker empowers presenters to easily annotate over any of the UPX-2's embedded PC applications, including streaming video, or draw freely on the whiteboard with a choice of background templates or imported graphics. MediaMarker also enables telestration over external video, HDTV, and high-res RGB sources displayed frozen or full-motion. No other annotation solution so easily and elegantly supports such a complete range of media formats.

For ultimate clarity and impact, the MediaMarker Toolbar provides an extensive assortment of drawing tools to enable on-the-fly selection of line weights, colors, shapes, and fonts. To enable instant sharing of completed annotations, screenshots may be captured and saved to a network drive or portable flash card in JPEG, BMP, PNG, TIFF, and HTML formats. The MediaMarker Notebook even allows complete annotation sessions to be saved and reopened in a fully editable format, allowing the session to be continued at a later time, and allowing screen captures to be further manipulated following a presentation for high-quality distribution, posting and publishing purposes.

- ▶ A complete AV and digital media presentation solution - no computer required!
- ▶ 24-bit Isys i/O graphics │ Synapse Image Rendering Algorithm
- ▶ MediaMarker annotation with DualTouch Technology
- ▶ Windows XP Embedded operating system
- ▶ Onboard PC applications for Web browsing, streaming media, videoconferencing, and multimedia presentation
- ▶ Full-blown MS Word, Excel and PowerPoint applications (UPX-2-MSO model only)[2]
- ▶ High-performance multi-window HD video and RGB display
- ▶ Separately-controlled display outputs for presenter and audience
- ▶ Supports input resolutions up to 1600 x 1200 pixels
- ▶ Secure high-speed Ethernet and Cresnet communications

AVAILABLE MODELS[2]

UPX-2-1GB
Universal Presentation Processor

UPX-2-MSO
Universal Presentation Processor w/Microsoft® Office

SPECIFICATIONS

Processor
Intel Celeron A, 1.8 GHz

Memory
SDRAM: 512 MB DDR PC2100 DIMM
Flash: 1 GB Type II CF (occupies COMPACT FLASH card slot)[2]
PC Card: Accepts up to (2) 4GB Type II PC Cards (not included)
Maximum Project Size: 190 MB

Operating System
Microsoft® Windows® XP Embedded

Graphics Engine
Isys i/O engine, 24-bit non-palette graphics + 8-bit alpha channel transparency, 16.7 million colors, Synapse image rendering algorithm, multi-mode objects, dynamic graphics, full-motion (60 fps) animation, transition effects, color key video windowing

Embedded Software Applications[1]
Crestron MediaMarker™, Microsoft Internet Explorer w/Macromedia® Flash® plug-in, Windows Media® Player, RealPlayer®, Wordpad, Remote Desktop, NetMeeting®, Java™ Runtime, DirectX®, Axis Media Control, plus viewers for PowerPoint®, Excel, Word, and Adobe® Acrobat®; UPX-2-MSO includes full featured MS Office applications including PowerPoint, Excel, and Word

Touch/Mouse Device Support
Mouse/Keyboard: Microsoft Serial Mouse, Kensington Serial Mouse, generic USB mouse/keyboard, PS/2 compatible mouse/keyboard
Touchscreen/Pen Display: Crestron DTT, 3M Microtouch (serial), CyberTouch
Note: Specific models and protocols subject to verification; refer to Website or contact factory for latest device support

Ethernet
10BaseT/100BaseTX, auto-switching Fast Ethernet, full duplex, TCP/IP, CIP, DHCP, IEEE 802.3U compliant

Video/RGB
Inputs: (2) RGB and up to (6) video inputs configurable for various combinations of composite, S-Video, component, and HDTV
Output A: (Presenter) Displays Control/PC GUI with up to (3) video windows showing any combination of up to (2) RGB sources, up to (2) video sources, and/or (1) HDTV source
Output B: (Audience) Selectively displays same image as Output A (control toolbars selectively hidden) or any external input source displayed full screen
Color Depth: 24-bit, 16.7M colors

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Universal Presentation Processor **UPX-2**

Scalers: (3) Scalable video windows with time base correction, gamma correction, line doubling, motion adaptive deinterlacing, and reverse 3:2/2:2 pulldown; (1) additional scaler enables display of Output B within a window on Output A
Streaming/File Formats: MPEG4 & MJPEG via Axis Media Control plus all formats supported by the embedded media player applications[1]

Audio

Streaming/File Formats: As supported by the embedded media player applications
Audio Feedback (WAV): 8 & 16 bit PCM, mono & stereo, 8 – 44 kHz sampling rates

Connectors

VIDEO INPUT 1/HDTV: (3) BNC female
Signal Types: Dynamically configurable under system control as:
    (1) Component (YP_BP_R) video input, or
    (3) Composite (NTSC/PAL) video inputs, or
    (1) S-Video (Y/C) input and (1) Composite input
Formats: SDTV 480i (NTSC) & 576i (PAL), EDTV 480p & 576p, HDTV 720p & 1080i;
Input Levels: 0.5 to 1.5 V_{P-P} with built-in DC restoration
Input Impedance: 75 ohms
Horizontal Frequency: 15 to 45 kHz
Vertical Frequency: 50 to 60 Hz

VIDEO INPUT 2: (3) BNC female
Signal Types: Dynamically configurable under system control as:
    (1) Component (YP_BP_R) video input, or
    (3) Composite (NTSC/PAL) video inputs, or
    (1) S-Video (Y/C) input and (1) Composite input
Formats: SDTV 480i (NTSC) & 576i (PAL)
Input Levels: 0.5 to 1.5 V_{P-P} with built-in DC restoration
Input Impedance: 75 ohms
Horizontal Frequency: 15.75 kHz (NTSC); 15.625 kHz (PAL)
Vertical Frequency: 50 to 60 Hz

RGB INPUT A – B: (2) DB15HD female, RGB (VGA) inputs
Analog Formats: RGBHV, RGBS and RG$_s$B
Input Resolution, Non-interlaced: 640 x 480 minimum to 1600 x 1200 maximum;
Input Levels: 0.5 to 1.5 V_{P-P} with built-in DC restoration
Input Impedance: 75 ohms
Sync Input Type: Autodetect RGBHV, RGBS, RG$_s$B
Sync Input Level: 3 to 5 V_{P-P}
Sync Input Impedance: 1k ohms
Horizontal Frequency: 31.5 to 100 kHz
Vertical Frequency: 60 to 85 Hz (75 Hz limit at 1600 x 1200)

RGB OUTPUT A – B: (2) DB15HD female, RGB (VGA) outputs
(Both outputs use same display setting);
Analog Format: RGBHV
Aspect Ratio: Software configurable 4:3, 15:9, or 16:9
Output Resolution: Software selectable 800x600, 1024x768, 1280x720, 1280x768, 1280x960, 1280x1024;
Sync Output Type: RGBHV
Sync Output Level: TTL, 5.0 V_{P-P}
Polarity: H/V user-selectable
Vertical Frequency: 60 to 85 Hz (60 Hz limit at 1280 x 1024)

MIC: (1) 3.5 mm TRS mini phone jack (red)
Simplex-powered PC microphone input
Input Level: 0.1 V_{RMS} (Boost on); 1.0 V_{RMS} (Boost off)
Input Impedance: 10k ohms

LINE IN: (1) 3.5 mm TRS mini phone jack (blue)
Unbalanced stereo audio input
Input Level: 1.0 V_{RMS}
Input Impedance: 10k ohms

LINE OUT: (1) 3.5 mm TRS mini phone jack (green)
Unbalanced stereo audio output
Output Level: 1.0 V_{RMS}
Output Impedance: 10k ohms

SPDIF: (1) RCA female, coaxial digital audio output
Impedance: 75 ohms

1394: (1) IEEE 1394b port[1]

NETWORK: (1) 8-wire RJ45 with 2 LED indicator
10/100BaseT Ethernet port
Green LED indicates link status
Yellow LED indicates Ethernet activity

USB: (4) Type A female (1 front, 3 rear)
USB 2.0 ports for DTT, touch/mouse, keyboard, and storage devices[1]

MOUSE/KEYBOARD: (2) 6-pin mini DIN female
PS/2® mouse and keyboard input ports

NET: (1) 4-pin 5mm detachable terminal block
Cresnet slave port (data only; 24V terminal not used)
Connects to Cresnet control network

COM: (1) DB9 male, bidirectional RS-232/422/485 port for 3rd-party device control or Touch-The-PC mouse control;
Up to 115.2K baud; hardware and software handshaking support

AUX COM: (1) DB9 male, bidirectional RS-232 port for computer console and touch/mouse input[1];
Up to 115.2k baud; hardware and software handshaking support

PC CARD A – B: (2) Type II PC Card slots (front)
For memory expansion, project upload, and wireless NIC[1]

COMPACT FLASH: (1) Type II Compact Flash card slot
For 1GB compact flash card containing firmware and OS (included)

100-240V ~ 6.3A: (1) IEC socket and main power switch
Mates with removable power cord, included

G: (1) 6-32 screw, chassis ground lug

Controls

PWR: (1) Recessed pushbutton, processor shutdown/reactivate
RESET: (1) Recessed pushbutton, hardware/software reset
SETUP: (1) Pushbutton on rear panel, touch-settable ID (TSID)

LED Indicators

PWR: (green) Indicates processor is powered on and active
NET: (yellow) Indicates communication with Cresnet system
SETUP: (red) On rear panel, touch-settable ID (TSID)

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UPX-2 Universal Presentation Processor (continued)

Power Requirements

Main Power Consumption: 6.3 Amps, 100-240 Volts AC, 50/60 Hz
Cresnet Power Usage: 0 Watt @ 24 Volts DC

Environmental

Temperature: 41° to 113°F (5° to 45°C)
Humidity: 10% to 90% RH (non-condensing)

Enclosure

Black metal, 2U 19-inch rack-mountable (rack ears included)

Dimensions

Height: 3.56 in (9.04 cm), 3.47 (8.81 cm) without feet
Width: 17.03 in (43.26 cm), 19.0 in (48.26 cm) with ears
Depth: 12.12 in (30.78 cm)

Weight

11.65 lbs (5.28 kg)

[1] *Refer to manual, Website, or contact factory for a current list of compatible devices and embedded applications; to ensure reliable performance, new device drivers and applications are available only from Crestron through firmware updates.*

[2] *Older UPX-2 models having 512MB compact flash and pre-2.0 firmware may be upgraded to a UPX-2-1GB through the purchase of a UPX-OS1GB upgrade, or to a UPX-2-MSO through the purchase of a UPX-OS1GB-MSO upgrade.*

Rear View

AVAILABLE ACCESSORIES

▸ **DTT-17**
17" DualTouch Technology Touchpanel

▸ **DTT-15V2**
15" DualTouch Technology Touchpanel

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17" DualTouch™ Technology Touchpanel **DTT-17**

The DTT-17 is a 17" touchpanel designed for use with the UPX-2 Universal Presentation System* to support all of the control capabilities of a Crestron touchpanel, plus pen-based annotation and computer-based multimedia presentation.

DualTouch™ Technology—This Crestron exclusive combines fingertip operated touchpanel control with a precision drawing tablet to produce an amazingly flexible presentation solution. Crestron DualTouch Technology touchpanels employ a brilliant combination of analog resistive touch sensing for fingertip-operated touchpanel control and Wacom® Penabled™ technology for precise drawing and annotation.

DualTouch Technology allows the presenter to touch the screen with a fingertip to control AV and lighting functions, and then on-the-fly annotate freely over video and graphic presentation sources using the wireless pen provided. Switching between modes is automatic and instantaneous, disabling the analog membrane whenever the pen is sensed allowing the palm of the hand to be rested naturally on the screen while drawing.

Versatile Installation Options—The DTT-17 ships complete with tilt stand, annotation pen, pen stand, cables, and power supply. The adjustable stand allows the touchpanel to be tilted between 15 and 72 degrees for optimal comfort while annotating. Additional installation options are possible using any third-party VESA mounting compliant solution.

▸ The Ultimate Presenter's Interface

▸ 17" LCD color touchscreen display

▸ 1280 x 1024 SXGA resolution

▸ Provides the perfect front end for Crestron's UPX-2 Universal Presentation System Processor*

▸ DualTouch Technology - Delivers a seamless combination of touchpanel control and pen-based annotation

▸ Ergonomic Design - Allows more natural drawing capability than ordinary touchpanels

▸ Includes tilt stand, wireless annotation pen, and power supply

SPECIFICATIONS

Touchscreen Display

Display: TFT active matrix color LCD
LCD Screen Size: 17 inch (43.2 cm) diagonal
LCD Active Area: 13.30 in x 10.65 in (33.79 cm x 27.03 cm)
Resolution: 1280 x 1024 pixels (SXGA)
Color Depth: 16.2 million (18 bit + FRC)
Contrast Ratio: 450:1
Brightness: 240 nits (cd/m²)

Viewing Angle: ±70° horizontal, ±70° vertical
Touchscreen: Resistive membrane

Pen

Pen Pressure: 512 levels
Pen Switches: Side rocker switch (assignable)
Accuracy: ±1 pixel
Reading Height: 0.4 in (1.02 cm) maximum
Report Rate: 133 points per second
Reading Technology: Electro-magnetic resonance

Connectors

RGB IN: (1) DVI-I female, RGB (VGA) video input
Connects to RGB Output A of UPX-2 using 6.5 ft (2.0 m) DVI-to-VGA cable (included)

USB: (1) USB B female, USB 2.0 port
Connects to any USB port on UPX-2* using 6.5 ft (2.0 m) USB cable (included)

SERIAL: (not used)

DC IN: (1) DC power jack (power supply included)

Controls

MENU, -, +, ENTER: (4) Pushbuttons to navigate onscreen setup menu
POWER: (1) Pushbutton turns unit on/off

LED Indicators

STATUS: (Blue) Indicates sensing of annotation pen
POWER: (Dual-color) Blue indicates power is on with a valid RGB input signal connected; turns amber when RGB signal is disconnected

Power Requirements

Touchpanel: 45 watts (3.75 Amps) @ 12 Volts DC
External Power Supply (included): 100-240 Volts AC, 50-60 Hz

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DTT-17 17" DualTouch™ Technology Touchpanel (continued)

Environmental

Temperature: 41° to 95°F (5° to 35°C)
Humidity: 20% to 80% RH (non-condensing)

Enclosure

Construction: High impact black injection-molded case with adjustable tabletop tilt stand; VESA mounting compliant
Screen Tilt: Adjustable 15 to 72 degrees

Dimensions (including stand)

Height: 13.57 in (34.47 cm) maximum
Width: 16.36 in (41.56 cm)
Depth: 13.57 in (34.47 cm) maximum

Weight

13.6 lbs (6.2 kg) including stand

* Requires UPX-2 with 1 GB Flash memory and firmware version 2.0 or later.

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15" DualTouch™ Technology Touchpanel **DTT-15V2**

The DTT-15V2 is a 15" touchpanel designed for use with the UPX-2 Universal Presentation System to support all of the control capabilities of a Crestron touchpanel, plus pen-based annotation and computer-based multimedia presentation.

DualTouch™ Technology—This Crestron exclusive combines fingertip operated touchpanel control with a precision drawing tablet to produce an amazingly flexible presentation solution. Crestron DualTouch Technology touchpanels employ a brilliant combination of analog resistive touch sensing for fingertip-operated touchpanel control and Wacom® Penabled™ technology for precise drawing and annotation.

DualTouch Technology allows the presenter to touch the screen with a fingertip to control AV and lighting functions, and then on-the-fly annotate freely over video and graphic presentation sources using the wireless pen provided. Switching between modes is automatic and instantaneous, disabling the analog membrane whenever the pen is sensed allowing the palm of the hand to be rested naturally on the screen while drawing.

Versatile Installation Options—The DTT-15V2 ships complete with tilt stand, annotation pen, pen tether, cables, and power supply. The adjustable stand allows the touchpanel to be tilted between 15 and 72 degrees for optimal comfort while annotating. An integral security slot enables securing the touchpanel using a Kensington® compatible security cable (not included). Additional installation options are possible using any third-party VESA mounting compliant solution.

▸ The Ultimate Presenter's Interface

▸ 15" LCD color touchscreen display

▸ 1024 x 768 XGA resolution

▸ Provides the perfect front end for Crestron's UPX-2 Universal Presentation System Processor

▸ DualTouch Technology - Delivers a seamless combination of touchpanel control and pen-based annotation

▸ Ergonomic Design - Allows more natural drawing capability than ordinary touchpanels

▸ Includes tilt stand, wireless annotation pen, and power supply

SPECIFICATIONS

Touchscreen Display

Display: TFT active matrix color LCD
LCD Screen Size: 15 inch (38.1 cm) diagonal
LCD Active Area: 11.9 in x 8.9 in
Resolution: 1024 x 768 pixels (XGA)
Color Depth: 16.7 million (24 bit)

Contrast Ratio: 250:1
Brightness: 200 nits (cd/m²)
Viewing Angle: ±80° horizontal, ±80° vertical
Touchscreen: Resistive membrane

Pen

Pen Pressure: 512 levels
Pen Switches: Side rocker switch (assignable)
Accuracy: ±1 pixel
Reading Height: 0.2 in (0.5 cm) maximum
Report Rate: 93 points per second
Reading Technology: Electro-magnetic resonance

Connectors

RGB IN: (1) DB15HD female, RGB (VGA) video input
Connects to RGB Output A of UPX-2 using 6.5 ft (2.0 m) DB15HD VGA cable (included)

RGB OUT: (1) DB15HD female, RGB (VGA) video loop-thru
Passes RGB input through to an additional display device

USB: (1) USB B female, USB 2.0 port
Connects to any USB port on UPX-2 using 6.5 ft (2.0 m) USB cable (included)

DC IN: (1) DC power jack (power supply included)

Controls

MENU, -, +, ENTER: (4) Pushbuttons to navigate onscreen setup menu
POWER: (1) Pushbutton turns unit on/off

LED Indicators

STATUS: (Blue) Indicates sensing of annotation pen
POWER: (Dual-color) Blue indicates power is on with a valid RGB input signal connected; turns amber when RGB signal is disconnected

Power Requirements

Touchpanel: 24 watts (2.0 Amps) @ 12 Volts DC
External Power Supply (included): 100-240 Volts AC, 50-60 Hz

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DTT-15V2 15" DualTouch™ Technology Touchpanel (continued)

Environmental

Temperature: 41° to 95°F (5° to 35°C)
Humidity: 20% to 80% RH (non-condensing)

Enclosure

Construction: High impact black injection-molded case with adjustable tabletop tilt stand; VESA mounting compliant
Screen Tilt: Adjustable 15 to 72 degrees

Dimensions (including stand)

Height: 12.90 in (32.77 cm) maximum
Width: 15.75 in (40.00 cm)
Depth: 12.59 in (31.98 cm) maximum

Weight

10.8 lbs (4.9 kg) – including stand

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8X1 High-Definition Digital Video Processor **DVPHD-PRO**

The DVPHD-PRO is an advanced multi-window digital video processor and touchpanel interface. Ideal for videoconference rooms, lecture halls and training labs, command centers, operating rooms, ground and air traffic control, security and surveillance, public information, houses of worship, home theater, sports bars, and all kinds of entertainment venues, the DVPHD-PRO combines a unique set of features to deliver a dramatic and versatile presentation solution. Out-of-the-box functionality means the DVPHD-PRO can be used standalone or as part of a complete Crestron control system.

Multi-Window Video Processor—The DVPHD-PRO displays up to 8 simultaneous video windows on a single high-resolution monitor, projector, or flat panel display. Its 4 multi-format video inputs and 4 high-res DVI-I inputs each route to a dedicated video window1 onscreen. These video windows can be displayed together in any combination over a fully-customizable graphic background. Each window is fully-scalable and independently controllable, allowing for display at any position, size, or aspect ratio.

Multi-Format Support—The 4 DVI-I inputs support high-resolution digital DVI and HDMI sources with HDCP, as well as analog RGB and component sources, with resolutions up to 1920 x 1200 pixels. The 4 video inputs accept HDTV/component sources up to 1080p, as well as NTSC/PAL composite and S-Video signals. Auto-detection on every input configures the DVPHD-PRO automatically to match the input signals. DVI-I and QuickMedia outputs provide a choice of digital or analog signals to feed a non-interlaced RGB, DVI, or HDMI display.[2]

Pure Digital HD Video—A 100% digital backplane means the DVPHD-PRO's internal signal is never degraded by noise, and its DVI digital inputs and output ensure a pure digital signal throughout. DVI affords simplified connectivity through a single-cable interface that combines uncompressed digital high-definition video with intelligent format and command data. The DVI-I format employed on the DVPHD-PRO supports the choice of digital or analog signals through a single connector. EDID information on the digital output affords easy and reliable setup when connected to an EDID-compliant display.

100% HDCP Compliance—Advanced HDCP implementation ensures compliance with a complete range of digital video players, cable and satellite receivers, multimedia computers, displays, and projectors. The DVPHD-PRO can manage 4 separate HDCP input connections from DVI or HDMI sources, and generate a new HDCP-encrypted output combining any of the inputs. The authentication key from the connected display device is passed back to each source to enable full high-definition display of copy-protected content.

Advanced Image Processing—Whether displaying a single full-screen image, or several windows with graphics, the DVPHD-PRO scales the output signal perfectly to match the native resolution of your high-definition display, supporting any aspect ratio with output resolutions up to 1920 x 1200 pixels. Featuring Gennum's Visual Excellence Processing™ with TruMotionHD™ fully adaptive deinterlacing, the DVPHD-PRO achieves exceptional image sharpness and resolution from SDTV, HDTV, and computer sources. RealityExpansion™ 10-bit image processing employing FidelityEngine™ image enhancement delivers astounding realism and detail. FineEdge™ dynamic directional interpolation eliminates the jaggy artifacts typical of traditional deinterlacing algorithms.

Isys® Graphics—The DVPHD-PRO includes Crestron's 24-bit Isys graphics engine, allowing for the creation of stunning graphics, high-res images, dynamic text, multi-mode objects, and full-motion animations. Advanced antialiasing delivers crisp, sharp objects and text, while enhanced 3D effects add alluring depth and style. The position and appearance of the video windows within the graphical environment can be fully customized with the ability to apply digital transition effects for a dynamic look and feel.

Touchpanel Interface—With both USB and RS-232 connections, the DVPHD-PRO can be used to transform a third-party touchscreen monitor, pen display, whiteboard, or touch-enabled plasma display into a full-featured, large-scale Crestron touchpanel. This opens a host of possibilities for special control and presentation applications such as interactive kiosks, museum and tradeshow exhibits, training rooms, and command centers. As an alternative to touchscreen, its graphical interface can also be navigated

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DVPHD-PRO 8X1 High-Definition Digital Video Processor (continued)

using an onscreen cursor driven by a wired or wireless mouse, or discrete commands from a separate touchpanel, computer, keypad, or handheld remote.

Annotation—Built-in annotation capability allows presenters to write or draw over live computer and video images using a finger, stylus, or mouse cursor. Moving images can also be frozen onscreen to allow annotation over a still picture. Brush sizes and colors are selectable on the fly. The DVPHD-PRO works equally well with external annotation processors like the Crestron UPX-2, and many third-party products.

QuickMedia™ Output—A QM Output port is included on the DVPHD-PRO, providing a very streamlined, low-cost, long-distance wiring solution for driving a display device up to 450 feet away. Crestron's exclusive QuickMedia transport transmits the DVPHD-PRO's full-resolution analog RGB output signal over a single low-skew CAT5e type cable without compression or downscaling. Just one CresCAT-QM cable and a QM receiver are all that is required for complete signal routing and device control, eliminating all the bulky, expensive cabling that would otherwise be needed.

High-Speed Connectivity—Both Cresnet and high-speed Ethernet are standard on the DVPHD-PRO, providing for easy network integration and seamless communications with Crestron control systems.

Front Panel Control—Out of the box, the DVPHD-PRO front panel enables easy setup without necessitating a computer. Its extra-large LCD display, together with 6 softkey buttons and 4 menu navigation buttons, enables configuration of source inputs, display output, window positioning and sizing, IP network, and many other system settings. Built-in test patterns eliminate the need for an external pattern generator for proper display calibration. Both the LCD display and the button label strips are easily customized, allowing for the clear designation of sources and functions. For security, the front panel controls can be password protected or locked out.

Built-in Web Server—Setup and operation is also facilitated through a simplified Web interface hosted onboard the DVPHD-PRO. In addition to configuring inputs and output display settings, the Web interface lets you position and size each video window.

▸ High-performance multi-window video processor
▸ True 10-bit video processing for astonishing realism
▸ Latest generation high-definition scaling and de-interlacing — delivers highest video image quality ever!
▸ All-digital internal backplane means no noise is added

▸ Fully-customizable 24-Bit Isys graphics
▸ Synapse image rendering algorithm
▸ Up to 8 simultaneous fully-scalable video windows
▸ Input & output resolutions up to 1920 x 1200
▸ 720p, 1080i, and 1080p HDTV support
▸ 4 auto-detecting multi-format HD/video inputs
▸ 4 high-resolution DVI digital and RGB/component inputs
▸ Non-interlaced DVI, RGB, and QuickMedia outputs
▸ Advanced HDCP compliance and HDMI compatibility
▸ Standalone operation — no control system required
▸ Out-of-the-box functionality — no programming required
▸ Enhanced LCD front panel and built-in Web pages for easy setup and operation
▸ Touchpanel interface — turns a 3rd-party touchscreen display into an Isys touchpanel
▸ Built-in real-time annotation
▸ Wired or wireless USB mouse support
▸ High-speed Ethernet and Cresnet communications
▸ Three-space rack-mountable
▸ Built-in international power supply

SPECIFICATIONS

Video/RGB/DVI

Scaling/Windowing Processor: Gennum VXP™ with eight channel image processing
Input Signal Types: Auto-detecting DVI, HDMI, RGB, component, S-Video, and composite video[2]
Input Formats: NTSC/PAL interlaced video; HDTV up to 1080i/1080p; DVI/HDCP, HDMI/HDCP, and RGB up to WUXGA
Input Resolutions, Interlaced: 480i, 576i, 1080i
Input Resolutions, Non-Interlaced: Up to 1920 x 1200 @60Hz
Output Signal Types: DVI, HDMI, or RGB, plus RGB via QuickMedia (QM)[2]
Output Formats: Progressive scan HDTV up to 1080p, DVI/HDCP or HDMI/HDCP w/EDID up to WUXGA, RGB up to WUXGA
Output Resolutions, Non-Interlaced: Up to 1920 x 1200 @60Hz
Color Depth: 24-bit, 16.7M colors
Gain: 0dB (75 ohms terminated)
Bandwidth: 400MHz
Crosstalk: >54dB
S/N: >70dB
Bandwidth: 400MHz

Graphics

Processor: 32-bit Freescale ColdFire® Microprocessor
Engine: Isys engine, 24-bit non-palette graphics + 8-bit alpha channel transparency, 16.7 million colors, Synapse image rendering algorithm, multi-mode objects, dynamic graphics, PNG translucency, 24fps animation, transition effects, color key video windowing

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8X1 High-Definition Digital Video Processor DVPHD-PRO

Memory

DDR RAM: 256 MB
Flash: 64 MB
Compact Flash: 1 GB Type II CF provided; expandable to 4 GB
Maximum Project Size: 200 MB

Touch/Mouse Device Support3

Mouse: Generic USB Mouse, Microsoft Serial Mouse[2], Kensington Serial Mouse[2]
Touchscreen / Pen Display: 3M Dynapro SC3, 3M Microtouch, CyberTouch, DisplayMate, Elo TouchSystems, SMART Technologies, Wacom
Note: Specific models and protocols subject to verification, refer to Website or contact Crestron for latest device support

Ethernet

10BaseT/100BaseTX, auto-switching, auto-negotiating, full/half duplex, TCP/IP, UDP/IP, CIP, IEEE 802.3U compliant

Connectors

VIDEO INPUT 1, 3, 5, 7: (4) sets of (3) BNC female
Signal Types: Each set dynamically configurable under system control as (1) auto-detecting component (YP_BP_R), S-Video (Y/C), or composite video input;

Formats: 480i (NTSC), 576i (PAL), 480p, 576p, 720p, 1080i and 1080p;
Input Levels: 0.5 to 1.5 V_{P-P} with built-in DC restoration
Input Impedance: 75 ohms
Horizontal Frequency: 15 to 67.5 kHz
Vertical Frequency: 25 to 60 Hz

DVI/RGB/YP_BP_R INPUT 2, 4, 6, 8: (4) DVI-I female (or DB15HD female via adapter included);
DVI, HDMI, RGB (VGA), or component (YP_BP_R) video inputs[2]
Digital Format: DVI 1.0 (HDMI 1.2 compatible) with HDCP 1.1 protocol
Analog Formats: RGBHV, RGBS, RG_SB, YP_BP_R (Supports EDTV 480p/576p and HDTV 720p/1080i/1080p);
Input Resolution, Non-interlaced: Up to 1920 x 1200 maximum (60 Hz limit at 1600 x 1200 or higher);
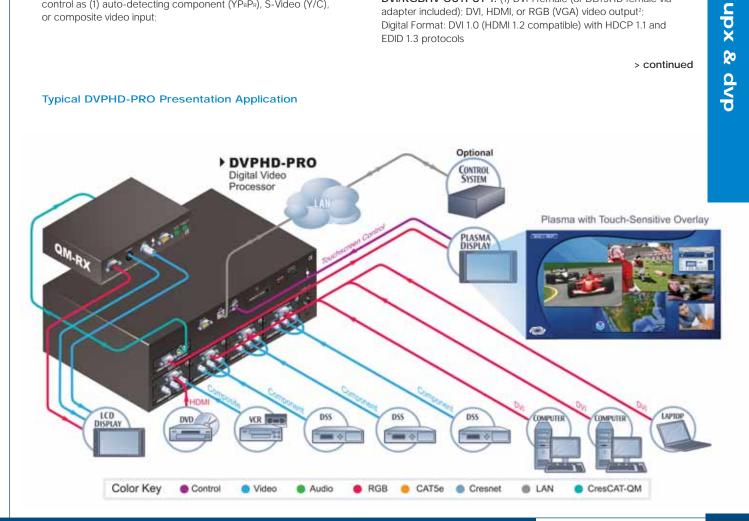Horizontal Frequency: 15 to 112 kHz
Vertical Frequency: 25 to 85 Hz
Analog Input Levels: 0.5 to 1.5 V_{P-P} with built-in DC restoration
Analog Input Impedance: 75 ohms
Analog Sync Input Type: Autodetect RGBHV, RGBS, RG_SB, YP_BP_R
Analog Sync Input Level: 3 to 5 V_{P-P}
Analog Sync Input Impedance: 1k ohms

DVI/RGBHV OUTPUT 1: (1) DVI-I female (or DB15HD female via adapter included); DVI, HDMI, or RGB (VGA) video output[2];
Digital Format: DVI 1.0 (HDMI 1.2 compatible) with HDCP 1.1 and EDID 1.3 protocols

Typical DVPHD-PRO Presentation Application

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DVPHD-PRO 8X1 High-Definition Digital Video Processor (continued)

Analog Formats: RGBHV (Supports EDTV 480p/576p and HDTV 720p/1080p output as RGB);
Output Resolution: Up to 1920 x 1200 maximum (60 Hz limit at 1600 x 1200 or higher);
Horizontal Frequency: 30 to 91 kHz
Vertical Frequency: 50 to 85 Hz
Analog Sync Output Type: RGBHV
Analog Sync Output Level: TTL, 5 V$_{P-P}$

QM OUTPUT 1: (1) 8-wire RJ45 female, QuickMedia output port containing analog RGB only (same as RGBHV OUTPUT 1);
Format: RGBHV (Supports EDTV 480p/576p and HDTV 720p/1080p output as RGB);
Output Resolution: Same as RGBHV OUTPUT 1
Connects to QM input port of any QuickMedia device via CresCAT-QM or CresCAT-IM cable;
Note: QM Output is disabled if HDCP is utilized

RS-232: (1) DB9 female, bidirectional RS-232 port
Computer console and mouse/touchscreen input[3]
Up to 115.2k baud; hardware and software handshaking support

LAN: (1) 8-wire RJ45 with 2 LED indicators
10/100BaseT Ethernet port for console and control
Green LED indicates link status
Yellow LED indicates Ethernet activity

USB A - B: Type A USB 1.1 host ports for mouse or touchscreen input[3]

MEMORY CARD: (1) Type II CF card slot
For memory expansion up to 4GB, 1GB included

NET: (1) 4-pin 5mm detachable terminal block
Cresnet Slave Port, connects to Cresnet control network

100-250V~5.0A 50/60Hz: (1) IEC male, main power input
Mates with removable power cord (included)

G: (1) 6-32 screw, chassis ground lug

COMPUTER (front): Type B USB client port for computer console

LCD Display

Green LCD alphanumeric, adjustable backlight
4 lines x 40 characters per line

Controls and Indicators

PWR: (1) Green LED, indicates connection to AC power source
NET: (1) yellow LED, indicates Cresnet bus activity
HW-R: (1) recessed miniature pushbutton for hardware reset, reboots the processor
SOFTKEYS: (6) pushbuttons for activation of LCD driven functions and passcode entry
MENU: (1) pushbutton, steps menu back one level
∧,∨: (2) pushbuttons, scroll up or down through menu and adjust menu parameters
ENTER: (1) pushbutton, executes highlighted menu or value

DISPLAY 1 – 4: (4) pushbuttons and red LEDs, select output parameters to be configured
IN 1 – 8: (8) pushbuttons and red LEDs, select input to be configured
SETUP (rear): (1) miniature pushbutton and (1) red LED, used for TSID and Ethernet autodiscovery

Power Requirements

Main Power: 5 Amps @ 100-250 Volts AC, 50/60 Hz
Cresnet Power Usage: Does not draw power from Cresnet

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 342 BTU/hr

Enclosure

Chassis: Steel, black matte powder coat finish, side-vented variable-speed fan cooling
Faceplate: Extruded aluminum, black matte powder coat finish with polycarbonate label overlay
Mounting: Freestanding or 3U 19-inch rack-mountable (adhesive feet and rack ears included)

Dimensions

Height: 5.31 in (13.49 cm), 5.22 (13.26 cm) without feet
Width: 17.03 in (43.26 cm), 19.0 in (48.26 cm) with ears
Depth: 14.45 in (36.71 cm)

Weight

15.32 lb (6.95 kg)

[1] A separate switcher or matrix router may be required if it is necessary to switch the signal displayed in any individual window.

[2] DVI-I connections require an appropriate adapter to accommodate HDMI, RGB, or component signals.

[3] Refer to Website or contact Crestron for latest firmware capabilities and device support.

VXP, Visual Excellence Processing, TruMotionHD, Reality Expansion, FidelityEngine, FineEdge, and the VXP Logo are trademarks or registered trademarks of Gennum Corporation.

AVAILABLE ACCESSORIES

▶ **CNPWS-75**
75 Watt Cresnet Power Supply

▶ **CNSP-XX**
Custom Serial Interface Cable

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Isys® G-Series Touchpanel Interface w/QuickMedia™ Transport Technology **TPS-G-TPI**

The TPS-G-TPI is designed to allow for the integration of non-Crestron touchscreens into the Crestron control system. The TPS-G-TPI transforms a third-party display device into a full-featured Isys G-Series touchpanel, producing stunning control graphics with dual-window display of HD video and high-res RGB signals. It is perfect for use with any plasma display equipped with a touch-sensitive overlay, as well as a variety of LCD touchscreen monitors and interactive pen displays.

Versatile Touchpanel Interface—To serve a wide range of touchpanel applications from multimedia presentation to interactive kiosks, the TPS-G-TPI works with numerous touchscreen and pen display products from 3M/Microtouch®, SMART Technologies®, Wacom® and many others. Alternately, its output can be displayed on any high-resolution monitor or large screen projector, providing a graphical interface that's fully navigable using an on-screen mouse-driven cursor. Even without a touchscreen or mouse attached, the TPS-G-TPI makes an exceptional high-resolution graphics/display generator perfect for voting systems, command centers, public information, and more.

Isys®—The TPS-G-TPI offers vibrant 24-bit color depth with 8-bit alpha channel transparency to produce incredible 3D graphics and high-res images. The Isys engine supports dynamic graphics and text, full-motion animations, multi-mode objects, and PNG translucency – all with astonishing speed.

Synapse™—Crestron's exclusive Synapse Image Rendering Algorithm enables system programmers to produce amazing graphics - faster and easier. Advanced antialiasing delivers crisper, sharper objects and text. Enhanced 3D effects add new depth and style. And because Synapse is native to the touchpanel, memory requirements and upload time are substantially reduced.

Dual-Window HD Video and RGB[1]—The TPS-G-TPI can simultaneously display two fully-scalable, full-motion video windows, each supporting standard video, HDTV, and high-resolution RGB signals from external AV and computer sources. Discrete video scalers with motion adaptive deinterlacing bring out the highest detail, minimizing visible scan lines and motion artifacts for a truly remarkable picture. Advanced gamma correction and built-in time base correction ensure accurate color reproduction and a jitter-free image.

Touch-the-PC—Crestron's exclusive "Touch-the-PC" technology allows real-time touchpanel navigation of any Windows PC through a direct high-speed serial connection.

Built-in Annotation—Built-in annotation capability allows presenters to write or draw over computer and video images on the touchscreen using a finger or stylus, and output the image live for audience display.

Audio Features—An audio output is provided for connection to the display device or separate amplified speakers, supporting customizable button feedback, personalized sounds, and voice prompts, plus amplification of audio signals from any connected AV or computer sources[1].

QuickMedia™—Audio and video connections are facilitated using Crestron's revolutionary QuickMedia transport, providing a flexible yet remarkably simple wiring solution. Through QuickMedia (QM), the TPS-G-TPI interfaces directly with other QM-based products using inexpensive CAT5e type cable.

The two QM Input ports each support non-interlaced RGB up to 1600 X 1200 pixels, as well as composite, S-Video, and component video signals. QM Input #1 includes software-adjustable compensation for cable runs up to 450 feet; Input #2 allows up to 300 feet for video and HDTV, and shorter distances for RGB computer signals. Both QM Inputs receive audio signals from external microphone and stereo line level sources. The QM Output port allows simultaneous output of the touchscreen image to feed an additional remote display device.

High-Speed Connectivity—Both Cresnet and high-speed Ethernet are standard on the TPS-G-TPI, providing for easy network integration and seamless communications with Crestron control systems.

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TPS-G-TPI Isys® G-Series Touchpanel Interface w/QuickMedia™ Transport Technology

▸ High-performance touchpanel interface

▸ 24-Bit Isys graphics

▸ Synapse image rendering algorithm

▸ Dual-window HD video and RGB display

▸ Built-in real-time annotation

▸ QuickMedia AV connectivity

▸ High-speed Ethernet and Cresnet communications

▸ Single-space rack-mountable

SPECIFICATIONS

Device Support[2]

Mouse: Microsoft Serial Mouse, Kensington Serial Mouse, Generic USB Mouse
Touchscreen / Pen Display: 3M Dynapro SC3, 3M Microtouch, CyberTouch, DisplayMate, Elo TouchSystems, SMART Technologies, Wacom
Note: Specific models and protocols subject to verification, refer to Website or contact factory for latest device support

Processor

CPU: 32-bit Freescale ColdFire® Microprocessor

Memory

DDR RAM: 128 MB
Flash: 64 MB
Compact Flash: Accepts up to 4GB Type II CF (not included)
Maximum Project Size: 145 to 160 MB depending upon screen resolution

Graphic Engine

Isys engine, 24-bit non-palette graphics + 8-bit alpha channel transparency, 16.7 million colors, Synapse image rendering algorithm, multi-mode objects, dynamic graphics, PNG translucency, full-motion (60 fps) animation, transition effects, color key video windowing

Ethernet

10BaseT/100BaseTX, auto-switching, auto-negotiating, full/half duplex, TCP/IP, UDP/IP, CIP, IEEE 802.3U compliant

Video/RGB[1]

Input Signal Types: RGB and auto-detecting composite, S-Video, or component video
Input Formats: SDTV 480i (NTSC) & 576i (PAL), EDTV 480p & 576p, HDTV 720p & 1080i; RGB(VGA) up to UXGA 1600 x 1200
Color Depth: 24-bit, 16.7M colors
Features: Dual-window each scalable to full-screen, time base correction, gamma correction, line doubling, motion adaptive deinterlacing, reverse 3:2/2:2 pulldown

Audio[1]

Hardware Features: Stereo headphone/line-level audio output, internal volume control and audio mixer
Audio Feedback (WAV): 8-bit PCM, mono, 8 kHz sampling rate
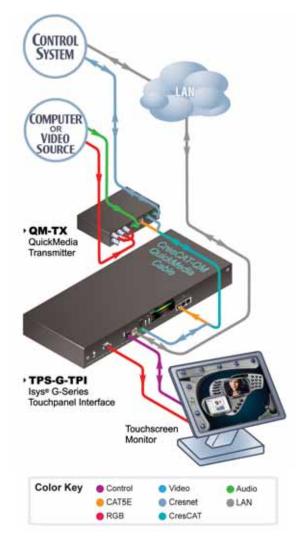**D-A Conversion (QM):** 24-bit, 48 kHz

Buttons & LED Indicators

Reset: (1) Recessed miniature pushbutton, reboots the touchpanel interface
PWR: (1) Green LED, indicates DC power applied to NET port or 24VDC jack

Connectors

QM IN 1: (1) 8-wire RJ45 female, QuickMedia input port
Signal Types: Dynamically configurable under system control as:
   (1) RGB input with stereo program audio and (2) mic channels, or
   (1) Auto-detecting component (YP_BP_R), S-Video (Y/C), or composite video input with stereo program audio and (2) mic channels;
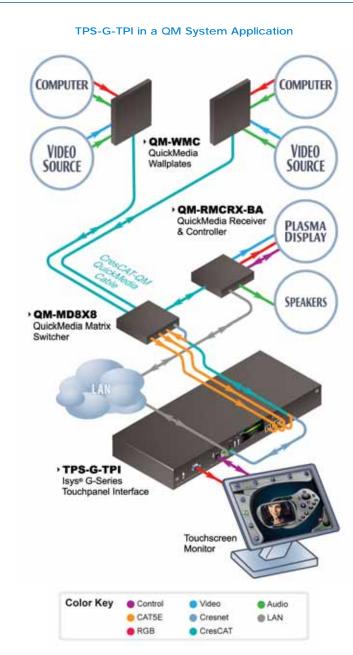
TPS-G-TPI using a Single QM transmitter

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Isys® G-Series Touchpanel Interface w/QuickMedia™ Transport Technology **TPS-G-TPI**

TPS-G-TPI in a QM System Application

Color Key
- ● Control
- ● CAT5E
- ● RGB
- ● Video
- ● Cresnet
- ● CresCAT
- ● Audio
- ● LAN

RGB Format: RGBHV
RGB Input Resolution, Non-interlaced: 640 x 480 minimum to 1600 x 1200 maximum (60 Hz limit at 1600 x 1200);
Video/HDTV Formats: 480i (NTSC), 576i (PAL), 480p, 576p, 720p and 1080i;
Horizontal Frequency: 15 to 100 kHz
Vertical Frequency: 50 to 85 Hz
Delay Skew Compensation: 0 - 22 nS
Connects to QM output port of a QM-TX or other QuickMedia device via CresCAT-QM or CresCAT-IM cable;
Maximum Cable Length: 450 ft (aggregate distance from QM origination)

QM IN 2: (1) 8-wire RJ45 female, QuickMedia input port
Signal Types: Dynamically configurable under system control as:
  (1) RGB input with stereo program audio and (2) mic channels, or
  (1) Auto-detecting component (YP_BP_R), S-Video (Y/C), or composite video input with stereo program audio and (2) mic channels;
RGB Format: RGBHV
RGB Input Resolution, Non-interlaced: 640 x 480 minimum to 1600 x 1200 maximum (60 Hz limit at 1600 x 1200);
Video/HDTV Formats: 480i (NTSC), 576i (PAL), 480p, 576p, 720p and 1080i;
Horizontal Frequency: 15 to 100 kHz
Vertical Frequency: 50 to 85 Hz
Delay Skew Compensation: none
Connects to QM output port of a QM-TX or other QuickMedia device via CresCAT-QM or CresCAT-IM cable;
Maximum Cable Length (Video/HDTV): 300 ft (aggregate distance from QM origination);
Maximum Cable Length (RGB @ 60Hz): 216 ft for 640x480, 140 ft for 800x600, 84 ft for 1024x768, 70 ft for 1280x768, 30 ft for 1600x1200 (using CresCAT-QM or CresCAT-IM cable)

QM OUT 1: (1) 8-wire RJ45 female, QuickMedia output port containing RGB (same as VGA OUTPUT) and WAV file audio signals;
Format: RGBHV
Output Resolution: same as VGA OUTPUT
Connects to QM input port of any QuickMedia device via CresCAT-QM or CresCAT-IM cable

VGA OUTPUT: (1) DB15HD female, RGB output
Format: RGBHV
Output Resolution: Software programmable 800x600, 1024x768, 1280x768, 1366x768, 1152x864, 1280x1024[2];
Sync Output Type: RGBHV
Sync Output Level: TTL, 4.0 V^{P-P}
Vertical Frequency: 60Hz fixed

HEADPHONES: (1) 3.5 mm TRS mini phone jack
Stereo headphone or unbalanced stereo line-level audio output
Output Power: 12mW per channel
Minimum Impedance: 32 ohms

RS-232: (1) 6-pin RJ11 female
Computer console or mouse/touchscreen input port[2]
Bidirectional RS-232 up to 115.2k baud
Hardware and software handshaking support

LAN: (1) 8-wire RJ45 with 2 LED indicators
10BaseT/100BaseTX Ethernet port
Green LED indicates link status
Yellow LED indicates Ethernet activity

24VDC: (1) 2.1mm barrel DC power jack
24 Volt DC power input
(PW-2420RU power supply sold separately)

NET: (1) 4-pin 3.5mm detachable terminal block
Cresnet Slave Port, connects to Cresnet control network

USB 1 - 2: (2) USB Type A female (future mouse/touch inputs)[2]

GND: (1) 6-32 screw, chassis ground lug

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TPS-G-TPI Isys® G-Series Touchpanel Interface w/QuickMedia™ Transport Technology

MEMORY EXP.: (1) Type II Compact Flash card slot for memory expansion

PC CARD A – B: (2) Type II PC Card slots (Reserved for future applications)[2]

Power Requirements

24VDC: 45 Watts (1.88 Amps) @ 24 Volts DC (PW-2420RU power supply sold separately)

Cresnet Power Usage: 45 Watts (1.88 Amps @ 24 Volts DC)

Note: Power should only be applied to the 24VDC power jack OR the NET port, not both.

Environmental

Temperature: 50° to 113°F (10° to 45°C)
Humidity: 10% to 90% RH (non-condensing)

Enclosure

Black metal, 1U 19-inch rack-mountable (rack ears included)

Dimensions

Height: 1.80 in (4.57 cm), 1.70 in (4.32 cm) without feet
Width: 17.03 in (43.24 cm), 19.0 in (48.26 cm) without ears
Depth: 10.43 in (26.49 cm)

Weight

5.0 lbs (2.2 kg)

[1] One or more QuickMedia devices are required to facilitate the input and output of audio, video, and RGB signals. See the "MediaManager" section of this catalog or visit the Crestron Website for more information about QuickMedia.

[2] Refer to Website or contact Crestron for latest firmware capabilities and device support.

Rear View

AVAILABLE ACCESSORIES

▶ **PW-2420RU**
Power Supply

▶ **QM-TX**
QuickMedia Transmitter

▶ **TPS/TPMC-CBL-T**
Triamese Interface Cables

▶ **ST-PK**
Programming Cable Kit

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Isys® G-Series Touchpanel Interface **TPS-GA-TPI**

The TPS-GA-TPI is designed to allow for the integration of non-Crestron touchscreens into the Crestron control system. The TPS-GA-TPI transforms a third-party display device into a full-featured Isys G-Series touchpanel, producing stunning control graphics with dual-window display of HD video and high-res RGB signals. It is perfect for use with any plasma display equipped with a touch-sensitive overlay, as well as a variety of LCD touchscreen monitors and interactive pen displays.

Versatile Touchpanel Interface—To serve a wide range of touchpanel applications from multimedia presentation to interactive kiosks, the TPS-GA-TPI works with numerous touchscreen and pen display products from 3M/Microtouch®, SMART Technologies®, Wacom® and many others. Alternately, its output can be displayed on any high-resolution monitor or large screen projector, providing a graphical interface that's fully navigable using an onscreen mouse-driven cursor. Even without a touchscreen or mouse attached, the TPS-GA-TPI makes an exceptional high-resolution graphics/display generator perfect for voting systems, command centers, public information, and more.

Isys®—The TPS-GA-TPI offers vibrant 24-bit color depth with 8-bit alpha channel transparency to produce incredible 3D graphics and high-res images. The Isys engine supports dynamic graphics and text, full-motion animations, multimode objects, and PNG translucency – all with astonishing speed.

Synapse™—Crestron's exclusive Synapse Image Rendering Algorithm enables system programmers to produce amazing graphics - faster and easier. Advanced antialiasing delivers crisper, sharper objects and text. Enhanced 3D effects add new depth and style. And because Synapse is native to the touchpanel, memory requirements and upload time are substantially reduced.

Dual-Window HD Video and RGB—The TPS-GA-TPI can simultaneously display two fully-scalable, full-motion video windows, each supporting standard video, HDTV, and high-resolution RGB signals from external AV and computer sources. Discrete video scalers with motion adaptive deinterlacing bring out the highest detail, minimizing visible scan lines and motion artifacts for a truly remarkable picture. Advanced gamma correction and built-in time base correction ensure accurate color reproduction and a jitter-free image.

Touch-the-PC—Crestron's exclusive "Touch-the-PC" technology allows real-time touchpanel navigation of any Windows PC through a direct high-speed serial connection.

Built-in Annotation—Built-in annotation capability allows presenters to write or draw over computer and video images

on the touchscreen using a finger or stylus, and output the image live for audience display.

Audio Features—An audio output is provided for connection to the display device or separate amplified speakers, supporting customizable button feedback, personalized sounds, and voice prompts.

QuickMedia™ Output—A QM Output port is included, allowing for output of the touchscreen image to feed a remote display device. QuickMedia provides a single-cable solution for routing the TPS-GA-TPI's display output and audio signals up to 450 feet.

High-Speed Connectivity—Both Cresnet and high-speed Ethernet are standard on the TPS-GA-TPI, providing for easy network integration and seamless communications with Crestron control systems.

▸ High-performance touchpanel interface
▸ 24-Bit Isys graphics
▸ Synapse image rendering algorithm
▸ Dual-window HD video and RGB display
▸ Built-in real-time annotation
▸ High-speed Ethernet and Cresnet communications
▸ Single-space rack-mountable

SPECIFICATIONS

Device Support[1]

Mouse: Microsoft Serial Mouse, Kensington Serial Mouse, Generic USB Mouse
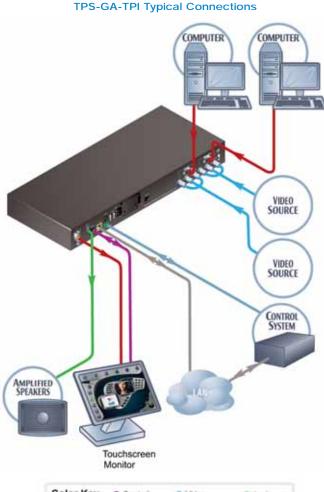**Touchscreen / Pen Display:** 3M Dynapro SC3, 3M Microtouch, CyberTouch, DisplayMate, Elo TouchSystems, SMART Technologies, Wacom

Note: Specific models and protocols subject to verification, refer to Website or contact Crestron for latest device support

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TPS-GA-TPI Isys® G-Series Touchpanel Interface (continued)

TPS-GA-TPI Typical Connections

Color Key ● Control ● Video ● Audio
CAT5E ● Cresnet ● LAN
● RGB ● CresCAT

Processor

CPU: 32-bit Freescale ColdFire® Microprocessor

Memory

DDR RAM: 128 MB
Flash: 64 MB
Compact Flash: Accepts up to 4GB Type II CF (not included)
Maximum Project Size: 145 to 160 MB depending upon screen resolution

Graphic Engine

Isys engine, 24-bit non-palette graphics + 8-bit alpha channel transparency, 16.7 million colors, Synapse image rendering algorithm, multi-mode objects, dynamic graphics, PNG translucency, full-motion (60 fps) animation, transition effects, color key video windowing

Ethernet

10BaseT/100BaseTX, auto-switching, auto-negotiating, full/half duplex, TCP/IP, UDP/IP, CIP, IEEE 802.3U compliant

Video/RGB

Input Signal Types: RGB and auto-detecting composite, S-Video, or component video
Input Formats: SDTV 480i (NTSC) & 576i (PAL), EDTV 480p & 576p, HDTV 720p & 1080i; RGB VGA 640 x 480 to UXGA 1600 x 1200
Color Depth: 24-bit, 16.7M colors
Features: Dual-window each scalable to full-screen, time base correction, gamma correction, line doubling, motion adaptive deinterlacing, reverse 3:2/2:2 pulldown

Audio

Hardware Features: Stereo headphone/line-level audio output, internal volume control
Audio Feedback (WAV): 8-bit PCM, mono, 8 kHz sampling rate
D-A Conversion (QM): 24-bit, 48 kHz

Buttons & LED Indicators

Reset: (1) Recessed miniature pushbutton, reboots the touchpanel interface
PWR: (1) Green LED, indicates DC power applied to NET port or 24VDC jack

Connectors

RGBHV 1 - 2: (2) DB15HD female, RGB (VGA) inputs
Formats: RGBHV, RGBS and RG$_S$B
Input Resolution: 640 x 480 minimum to 1600 x 1200 maximum, non-interlaced (60 Hz limit at 1600 x 1200);
Input Levels: 0.5 to 1.5 V$_{P-P}$ with built-in DC restoration
Input Impedance: 75 ohms
Sync Input Type: Autodetect RGBHV, RGBS, RG$_S$B
Sync Input Level: 3 to 5 V$_{P-P}$
Sync Input Impedance: 1k ohms
Horizontal Frequency: 31.5 to 100 kHz
Vertical Frequency: 60 to 85 Hz (60 Hz limit at 1600 x 1200)

Y, P$_B$/Y, P$_R$/C/COMP 1 – 2: (2) sets of (3) BNC female
Signal Types: Each set dynamically configurable under system control as (1) auto-detecting component (YP$_B$P$_R$), S-Video (Y/C), or composite video input;
Formats: 480i (NTSC), 576i (PAL), 480p, 576p, 720p and 1080i;
Input Levels: 0.5 to 1.5 V$_{P-P}$ with built-in DC restoration
Input Impedance: 75 ohms
Horizontal Frequency: 15 to 45 kHz
Vertical Frequency: 50 to 60 Hz

RGBHV OUTPUT: (1) DB15HD female, RGB output
Format: RGBHV
Output Resolution: Software selectable 800x600, 1024x768, 1280x768, 1366x768, 1152x864, 1280x1024[1];
Sync Output Type: RGBHV
Sync Output Level: TTL, 4.0 V$_{P-P}$
Vertical Frequency: 60 Hz fixed

QM OUT: (1) 8-wire RJ45 female, QuickMedia output port containing RGB (same as RGBHV OUTPUT) and WAV file audio signals;
Format: RGBHV
Output Resolution: same as RGBHV OUTPUT
Connects to QM input port of any QuickMedia device via CresCAT-QM or CresCAT-IM cable

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Isys® G-Series Touchpanel Interface **TPS-GA-TPI**

HEADPHONES: (1) 3.5 mm TRS mini phone jack
Stereo headphone or unbalanced stereo line-level audio output
Output Power: 12mW per channel
Minimum Impedance: 32 ohms

RS-232: (1) 6-pin RJ11 female
Computer console or mouse/touchscreen input port[1]
Bidirectional RS-232 up to 115.2k baud
Hardware and software handshaking support

LAN: (1) 8-wire RJ45 with 2 LED indicators
10BaseT/100BaseTX Ethernet port
Green LED indicates link status
Yellow LED indicates Ethernet activity

24VDC: (1) 2.1mm barrel DC power jack
24 Volt DC power input (PW-2420RU power supply sold separately)

NET: (1) 4-pin 3.5mm detachable terminal block
Cresnet Slave Port, connects to Cresnet control network

USB 1 - 2: USB 1.1 ports for mouse or touchscreen input1

G: (1) 6-32 screw, chassis ground lug

MEMORY EXP.: (1) Type II CF card slot for memory expansion

PC CARD A – B: (2) Type II PC Card slots
(Reserved for future applications)[1]

Power Requirements

24VDC: 32 Watts (1.34 Amps) @ 24 Volts DC
(PW-2420RU power supply sold separately)

Cresnet Power Usage: 32 Watts (1.34 Amps @ 24 Volts DC)

Note: Power should only be applied to the 24VDC power jack
OR the NET port, not both.

Environmental

Temperature: 50° to 113°F (10° to 45°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 110 BTU/Hr

Enclosure

Black metal, 1U 19-inch rack-mountable (rack ears included)

Dimensions

Height: 1.80 in (4.57 cm), 1.70 in (4.32 cm) without feet
Width: 17.03 in (43.24 cm), 19.0 in (48.26 cm) without ears
Depth: 10.68 in (27.13 cm)

Weight

4.8 lbs (2.2 kg)

[1] Refer to Website or contact Crestron for latest firmware capabilities
and device support.

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AVAILABLE ACCESSORIES

▶ **PW-2420RU**
Power Supply

▶ **ST-PK**
Programming Cable Kit

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Notes